I claim:

1. A heat-treating system for a steel part comprising:

a heat-treating furnace for receiving said steel part;

an atmosphere source of an ammonia based atmosphere conveyed to said furnace for reaction with said steel part;

a heat source connected to said furnace for maintaining a predetermined temperature of said atmosphere;

a water source including a flow meter;

a vessel connected to said furnace and said water source; and

a processor for determining ammonia content of the atmosphere as a function of amount of ammonia dissociated within said vessel, said amount determined, at least in part, by measuring the flow of water into said vessel.

2. The heat-treating system according to claim 1 wherein said processor continuously monitors said water flow.

3. The heat-treating system according to claim 1 wherein the processor includes an alarm function that is activated when said amount is outside of predetermined limits.

4. The heat-treating system according to claim 3 wherein the alarm function includes a display device.

5. The heat-treating system according to claim 1 wherein the processor includes an output reflecting the ammonia content.

6. The heat-treating system according to claim 5 wherein said processor includes a display for said output.

7. The heat treating system according to claim 5 wherein said processor is coupled to said atmosphere source to control said atmosphere based, at least in part, upon the output.

8. The heat treating system according to claim 1 wherein said processor compares said measured flow of water to a second measurement reflecting ammonia content of the atmosphere.

9. The heat-treating system of claim 8 wherein said second measurement is based, at least in part, upon a second water flow meter.

10. The heat-treating system of claim 8 wherein said second measurement reflecting ammonia content of the atmosphere is based, at least in part, upon a pressure transducer.

11. A method for determining an ammonia content of an ammonia-based atmosphere comprising the steps of:

providing a measurement vessel;

conveying said ammonia-based atmosphere into said measurement vessel;

conveying water into said measurement vessel to cause dissociation of ammonia from the atmosphere within said measurement vessel;

measuring a flow rate of water into the measurement vessel during the dissociation; and

determining the ammonia content in the atmosphere as a function of said dissociation based, at least in part, upon the flow rate of water.

12. The method of claim 11 further comprising the step of generating an output based, at least in part, upon the dissociation of ammonia from the atmosphere.

13. The method of claim 12 further comprising the step of using the output.

14. A method for monitoring a heat-treating system for a steel part, said method comprising:

providing a furnace to house said steel part;

introducing an ammonia based atmosphere into said furnace to react with said steel part;

providing a water source;

providing a flow meter connected to said water source;

providing a measurement vessel connected to said furnace and said water source;

filling said measurement vessel with said ammonia atmosphere and said water source;

measuring the flow rate of said water source; and

determining dissociation of ammonia in said system, at least in part, from said flow rate measurement in said measurement vessel.

15. The method of claim 14 further comprising the step of recording said flow rate measurement.

16. The method of claim 14 further comprising the steps of:

comparing said flow rate measurement to a predetermined ammonia atmosphere range; and

triggering a control signal if said flow rate measurement is outside of said predetermined atmosphere range.

17. The method of claim 14 further comprising the steps of:

providing a second flow meter;

comparing values of said second flow meter with said first flow meter; and

calibrating said first flow meter according to second flow meter values.

18. The method of claim 14 wherein said step of determining ammonia dissociation is performed before said ammonia atmosphere enters said furnace.

19. The method of claim 14 further comprising the step of providing a processor for determining ammonia dissociation.

20. The method of claim 19 further comprising the step of providing a display and an output for said processor.

21. The method of claim 20 further comprising the step of generating an alarm signal based, at least in part, on said output.

22. A method for monitoring a heat-treating system for a steel part, said method comprising:

providing a furnace to house said steel part;

introducing an ammonia based atmosphere into said furnace to react with said steel part;

providing a water source;

providing a flow meter connected to said water source;

providing a measurement vessel connected to said furnace and said water source;

filling said measurement vessel with said ammonia atmosphere and said water source;

measuring the flow rate of said water source;

and

controlling said atmosphere, at least in part, by said flow rate measurement.

23. The method of claim 22 further comprising the step of determining dissociation of ammonia in said system, at least in part, from said flow rate measurement in said measurement vessel.

24. The method of claim 23 further comprising the step of providing a processor for controlling said atmosphere and for determining said ammonia dissociation.

25. The method of claim 24 further comprising the step of providing a display and an output for said processor.

26. The method of claim 25 further comprising the step of generating an alarm signal based, at least in part, on said output.

27. A measurement system for determining ammonia content of an ammonia-based atmosphere as a function of atmosphere dissociation comprising:

a measurement vessel;

means for conveying said ammonia-based atmosphere into said measurement vessel;

means for conveying water into said measurement vessel;

means for measuring a flow rate of water into said measurement vessel; and

means for determining ammonia content of the atmosphere as a function of the amount of ammonia dissociation in said vessel based, at least in part, upon said means for measuring said flow rate of water.

28. The system according to claim 27 further comprising an output based, at least in part, upon means for determining the amount of ammonia dissociation in said vessel.

29. The system according to claim 28 further comprising means for controlling the amount of ammonia dissociation in the atmosphere, said control means based, at least in part, on said output.